

31 tries to integrate 10 servers, each of which has about 300GB (giga bytes:  $10^9$  bytes), the user must also provide a storage unit of 3TB (3 00GB X 10 servers in a simple calculation), and so the present technique will not actually be effective to prepare such a large scale storage unit at the client side. In addition, because a mass of data is transferred from a server to the client via a network when a replica is created, this will increase the load on the network significantly. If the data in the server is updated after a replica is created, the replica that was created by using the server's data must also be updated; and, thereby the cost of the updating will also be increased to an extent which cannot be disregarded, since this updating cost is proportional to the size of the replica. This method will not be a preferred example for data warehouse systems in a distributed environment.

~~1~~ Please replace the paragraph beginning at page 11, line 5, with the following rewritten paragraph:

32 -- A replica can be created so as to satisfy part or the whole of each replica creation request as follows. At first, the data collector accepts a replica creation request from a client. The request includes conditions such as the data quality, the precision, freshness, and priority of the data given from a user through the client, as well as the condition of the data collecting range. The data collector then holds the request. After that, the data collector negotiates with a server which supplies the object data considering the values of available resources, such as the storage unit capacity, the CPU performance, etc., thereby creating a replica which satisfies part or the whole of the replica creation request. Because a replica creation request is

given from each user, it is possible to collect the data wanted by the user, thereby the hit ratio of each replica can be improved to achieve the seventh object.

B2 Furthermore, because the data quality is adjusted when each replica is created, it is possible to create the object replica in a proper size according to the computer resources available for the data collector, thereby the reduction of the load on the object network, which is the fourth object, can be achieved and the reduction of the capacity of the storage unit of each client and the data collector, which is the fifth object, can be achieved. In addition, the reduction of the updating cost for each replica, which is the sixth object, can be achieved. --

~~11~~ Please replace the paragraph beginning at page 21, line 19 through page 22, line 19 with the following rewritten paragraph:

B3 -- Hereunder, the negotiation processing in step 211 will be described in detail with reference to Figs. 1 and 3. At first, a replica creation request is transferred from the data collector 101 to the server 114 (step 302). Then, if the server accepts the request (if Yes is selected in the decision step 303), the replica creation request (a rate in a accounting system) is defined as a condition for creating the replica requested by the data collector (step 310), then the replica creation management unit 107 of the data collector updates the replica management table 108 and the delivery data management unit 118 of the server updates the delivery data management table 120 according to the created condition, and the negotiation processing is ended (step 311). If there is no new condition to be presented to the data collector from the server (if No is selected in the decision step 312) when the

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replica creation request transferred from the data collector cannot be accepted (if No is selected in the decision step 303), the negotiation processing is ended without setting any information related to the replica creation request (step 311). If there is a new condition presented by the server to the data collector (if Yes is selected in the decision step 312) when the server cannot accept a replica creation request transferred from the data collector (when No is selected in the decision step 303), then the server transfers the new condition to the data collector (step 306). If the data collector accepts the condition presented by the server (if Yes is selected in the decision step 307), then the replica management table of the data collector and the delivery data management table of the server are updated according to the new condition defined as a replica creation condition (step 310), then the negotiation processing is ended (step 311). If the data collector cannot accept the condition presented by the server (if No is selected in the decision step 307), then the negotiation processing is ended without setting any information related to the replica creation request.

#### IN THE CLAIMS

Please cancel claims 1-34 without prejudice or disclaimer of the subject matter thereof.

Please add new claims 35-37 as follows:

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SUB C27- 35 A data warehouse system, comprising:  
a plurality of client devices, each for accepting a processing request from each user thereof;

a server provided with a database and used for searching said database according to access requests from said client devices;

a data collector associated with said client devices and provided with a storage device, for collecting data requested by users of said client devices and storing the data into said storage device as a replica which is partially replicating said database; and

a network for connecting said client devices to said server respectively via said data collector,

wherein said data collector comprises:

B4 a replica creation control means for determining whether a new replica of said database is to be created and stored in said storage device, in response to a replica creation request from one of said client devices, by referring to a replica management table which holds at least a data range and a data updating interval of each replica stored in the storage device,

a query analysis unit for analyzing a query processing request from one of said client devices to select, as an object to be searched, a replica stored in said storage device or said database,

a query processing unit for searching said replica stored in said storage device according to a query analysis result from said query analysis unit, and

a communication control unit for selecting a procedure for accessing said server according to said query analysis result, and

wherein said server comprises:

a communication control unit for receiving said query analysis result transmitted from said data collector, and

a query processing unit for searching the database of said server.

36. A data warehouse system, comprising:

a plurality of client devices, each for accepting processing a request from each user thereof

a server provided with a database and used for searching said database according to access requests from said client devices;

B4 a plurality of data collectors, each being associated with at least one of said client devices and each being provided with a storage device, each for collecting data requested by a corresponding user and storing the data into said storage device as a replica partially replicating said database; and

a network for connecting said client devices to said server respectively via an associated data collector,

wherein each of said data collectors comprises:

a replica creation control means for determining whether a new replica of said database is to be created and stored in said storage device, in response to a replica creation request from a corresponding client device, by referring to a replica management table which holds replica descriptions at least including a data range and a data updating interval of each replica stored in the storage device, and

a query analysis unit for analyzing a query processing request from one of said client devices to select, as an object to be searched, a replica stored in

said storage device according to a query analysis result from said query analysis unit, and

a communication control unit for selecting a procedure for accessing said server according to said query analysis result, and

wherein said server comprises:

a communication control unit for receiving said query analysis result transmitted from said data collector, and

a query processing unit for searching the database of said server.

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37. A data warehouse system according to claim 36, wherein said replica management table further holds additional replica descriptions including a data range, a data updating interval and a location of each replica stored in storage device of cooperative data collectors, and

wherein said replica creation control means determines whether a new replica of said database is to be created and stored or not, by further referring to additional replica descriptions. --